

REMARKS

The Office Action dated January 24, 2006, has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto.

By this amended, claims 6 and 7 have been amended and claims 8-10 have been added. No new matter is presented. Support for the amendments to claims 6 and 7 and for new claims 8-10 can be found on at least Figures 1-3 of the Specification as originally filed. Claims 1-10 are pending and respectfully submitted for consideration.

Rejections Under 35 U.S.C. § 103

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Hesse et al. (WO 00/29246, "Hesse") in view of Johansson (U.S. Patent No. 6,543,229 B2). Hesse was cited for disclosing many of the claimed elements of the invention with the exception of the Stirling engine having a heater that uses waste heat produced by the combustion engine for heating the working gas. Johansson was cited for curing this deficiency. The Applicant traverses the rejection and respectfully submits that claim 1 recites subject matter that is neither disclosed nor suggested by the cited references.

Claims 2 and 3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hesse in view of Johansson and Sakai (Japanese Patent Publication JP 2000-310158). Hesse, as modified by Johansson, was cited for disclosing many of the claimed elements of the invention with the exception of an engine speed control means for adjusting the engine speed of the Stirling engine. Sakai was cited for curing this deficiency.

Claims 4-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hesse in view of Johansson and Sakai and Kawabata et al. (Japanese Patent Publication JP 2001-298803, "Kawabata"). Hesse, as modified by Johansson and Sakai was cited for disclosing many of the claimed elements of the invention with the exception of the combustion engine being interlocked with a first one of the auxiliary machines by a first clutch, the auxiliary machine interlocked with the combustion engine being interlocked with the electric motor by a second clutch. Kawabata was cited for curing this deficiency.

To the extent that the above rejections remain applicable to the claims currently pending and subject to examination, the Applicant respectfully traverses the rejections and submits that claims 1-7 recite subject matter that is neither disclosed nor suggested by the cited references.

Hesse discloses a drive unit for a motor vehicle with an automotive drive mechanism consisting of an internal combustion engine (10). An additional internal combustion engine drive mechanism (12) is provided in order to drive components (10, 14, 18, 20) arranged in the motor vehicle. See the Abstract of Hesse.

The Applicant respectfully submits that Hesse fails to disclose or suggest additional features of the invention beyond those acknowledged in the Office Action. Claim 1 recites, in part, a generator connected to the electric motor and the battery to supply generated power to the electric motor and the battery. The Office Action took the position that Hesse discloses "a power plant comprising an internal combustion engine 10, an electric motor 14, a battery 22, auxiliary machines 16, 18 and a drive mechanism 12." See page 2, lines 9-11 of the Office Action. The Office Action,

however, did not identify a generator and the arrangement of the generator, electric motor and battery in Hesse. As such, the Applicant respectfully submits that Hesse fails to disclose or suggest at least the feature of a generator connected to the electric motor and the battery to supply generated power to the electric motor and the battery, as recited in claim 1. As acknowledged in the Office Action Hesse does not disclose a Stirling engine having a heater that uses waste heat produced by the combustion engine for heating the working gas. Johansson was cited for curing this deficiency.

Johansson discloses a diesel engine 12 as an internal combustion engine which creates heated exhaust gases, and a Stirling engine 14. Exhaust gases 28 from the diesel engine 12, shown as being at about 800°C, are routed through a heat exchanger in the heater head/burner 22 of engine 14 and is later re-circulated to the vehicle exhaust system, shown diagrammatically by arrow 18 in Figure 1. See column 1, line 61 to column 2, line 23 of Johansson.

Rejection of claim 1

The Applicant respectfully submits that Johansson fails to cure the deficiencies in Hesse with respect to claim 1, as Johansson also does not disclose or suggest at least the feature of a generator being connected to an electric motor and a battery to supply generated power to the electric motor and the battery, as recited in claim 1. As such, the combination of Hesse and Johansson fails to disclose or suggest each and every feature of the invention, as recited in claim 1.

Rejection of Claims 2-7

The Applicant respectfully submits that Sakai and Kawabata fail to cure the deficiencies in Hesse and Johansson with respect to claim 1, and therefore, Hesse, Johansson, Sakai and Kawabata, either singly or in combination, fail to disclose or suggest the features of the invention as recited in dependent claims 2-7.

With respect to claims 2 and 3, the Applicant respectfully submits that the combination of Hesse, Johansson and Sakai fail to disclose or suggest the claimed features of the invention.

Sakai discloses a controller controls the working gas sealing pressure of a Stirling engine 3 so that the heater tube heater 4 of the Stirling engine 3 has an optimum temperature. When the temperature cannot be kept optimum only by the control of sealing pressure, the controller 5 outputs a rotating speed command 8 so as to change the rotating speed to an inverter with power source regenerative function 9. See the Abstract of Sakai.

Claim 2, from which claim 3 depends recites an engine speed control means for adjusting the engine speed of the Stirling engine to an optimum engine speed at which the Stirling engine produces a maximum or substantially maximum brake horsepower. In contrast, Sakai discloses an invention which aims at determining the Stirling engine speed to an optimum speed at which a highest efficiency value is obtained for any engine load. The Applicant respectfully submits that "a highest efficiency value" disclosed in Sakai is not equivalent to "an optimum engine speed at which the Stirling engine produces a maximum or substantially maximum brake horsepower", as recited in

claim 2. As such, combination of Hesse, Johansson and Sakai fail to disclose or suggest the claimed features of the invention as recited in claims 2 and 3.

With respect to claims 4-7, the Applicant respectfully submits that the combination of Hesse, Johansson, Sakai and Kawabata fail to disclose or suggest the claimed features of the invention.

Kawabata discloses an output shaft 813 of the motor 81 being coupled with the input shaft 821 of the oil-hydraulic pump 82 via a first clutch 86 in such a way as to make it possible to be engaged or disengaged. The output shaft 814 of the motor 81 is coupled with the input shaft 831 of the AC compressor 83 via a second clutch 87 in such a way as to make it possible to be engaged or disengaged. The control of the coupling state of the first and second clutches 86, 87 enables a required auxiliary machine to be driven. See the Abstract of Kawabata.

Claim 4, from which claims 5-7 depend recites that the auxiliary machine is interlocked with the combustion engine is interlocked with the electric motor by a second clutch and that the electric motor is operatively connected to the rest of the auxiliary machines. As a result of the claimed invention, the auxiliary machine, which in one embodiment includes a compressor, for example, is driven though only the transmission belt and the clutch, and the electric motor is connected directly to the auxiliary machines without passing through any clutch. JP 2001-298803 (Kawabata) was additionally cited to reject claims 4-7. The Office Action took the position that "Kawabata is relied upon to disclose a power plant comprising a pair of clutches 86, 87 to drive the auxiliary machines". See page 3, lines 8-9 of the Office Action. However, Kawabata fails to cure the deficiencies in Hesse, Johansson and Sakai with respect to

claim 4. Kawabata merely discloses a compressor 83 driven by the engine 10 via the clutch 16 (engaged), the transmission belt 17, the pulley 851, the output shaft 85 and the inner rotor 812 of the drive motor 81. The Applicant submits that the compressor 83 in Kawabata cannot be driven without passing through the inner rotor 812 of the drive motor 81. Further, in contrast, Kawabata discloses that the drive motor 81 is connected to the hydraulic oil pump 82 via the first clutch 86.

Further, the Applicant respectfully submits that neither Sakai nor Kawabata disclose or suggest a generator connected to a electric motor and a battery to supply generated power to the electric motor and the battery. As such, Sakai and Kawabata fail to cure the deficiencies in Hesse and Johansson with respect to claim 1, and therefore, dependent claims 2-7.

Under U.S. patent practice, the PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the PTO itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under §103, there must be a showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish obviousness. The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (prior art could not be turned upside down without motivation to do so); In re Rouffet,

149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002). The Office Action restates the advantages of the present invention to justify the combination of references. There is, however, nothing in the applied references to evidence the desirability of these advantages in the disclosed structure.

In view of the above, the Applicant respectfully submits that the Office Action has failed to establish a *prima facie* case of obviousness for purposes of a rejection of claims 1-7 under 35 U.S.C. §103.

New claims 8-10 are directed to a power unit and the clutch arrangement as disclosed in Figures 1-3 of the application as originally filed. The Applicant respectfully submits that claims 8-10 are allowable for at least the same reasons as discussed above for claims 1-7.

Conclusion


Claims 2-7 depend from claim 1. The Applicant respectfully submits that each of these dependent claims incorporate the patentable aspects thereof, and are therefore allowable for at least the same reasons as discussed above. Accordingly, the Applicant respectfully requests withdrawal of the rejections, allowance of claims 1-7 and the prompt issuance of a Notice of Allowability.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an

extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing Attorney Dkt. No. 101173-00024.**

Respectfully submitted,



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